Relative abundance of Round Goby in a brackish Danish Fjord

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Relative abundance of Round Goby in a brackish Danish Fjord

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For the workshop: **Round goby – need for collaborative science and management in Nordic and Baltic countries**
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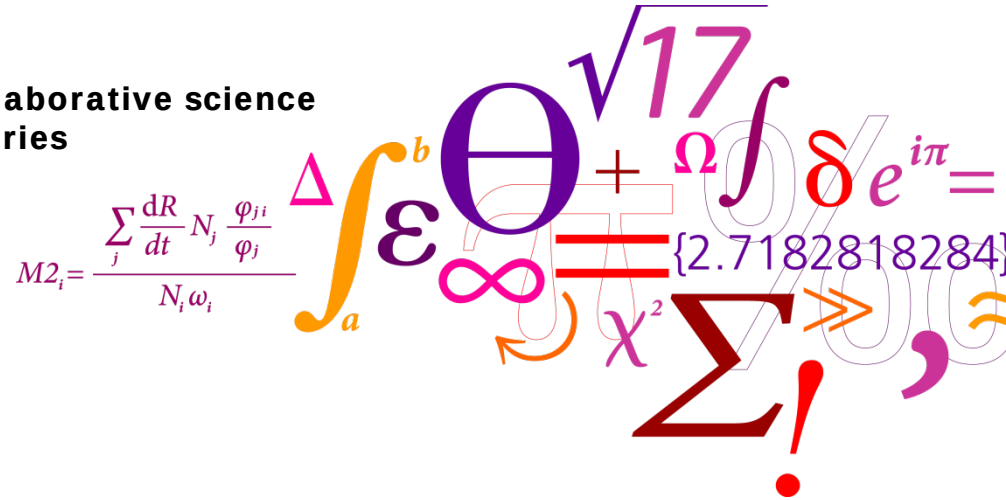
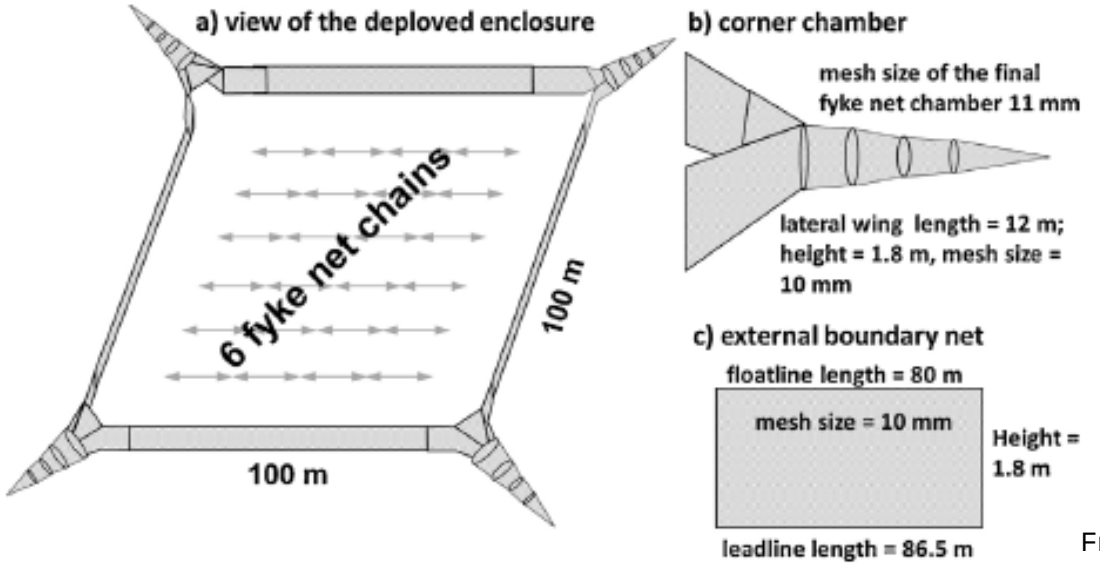


DTU Aqua
National Institute of Aquatic Resources

How to monitor the round goby?

- New monitoring approach used in Germany to quantify stock size of coastal European eel
- This monitoring was used in Denmark for the first time
- Consists of two parts
  - A) External part - boundary net (100x100 m=1ha). Fyke net chambers in each corner
  - B) Inside area - 6 chains of 5 double chamber fykes



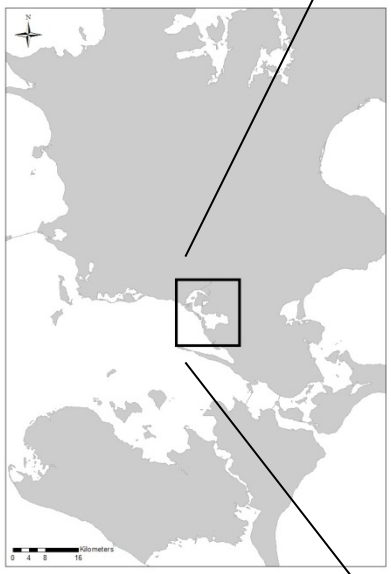
From Ubl & Dorow 2014

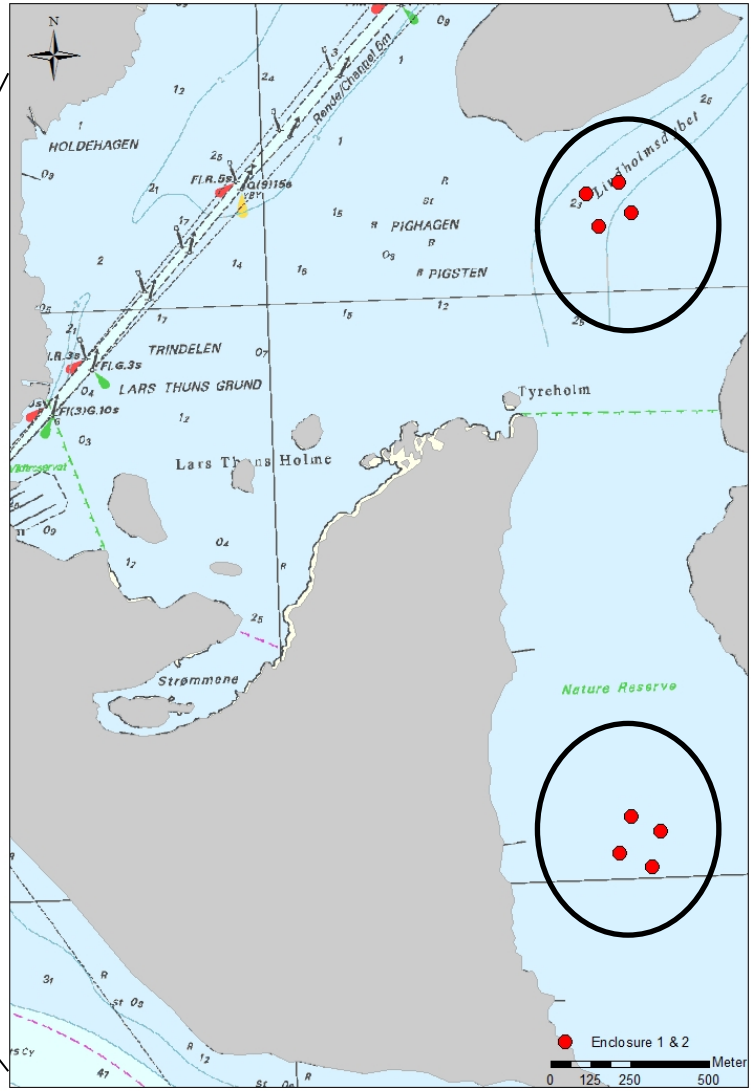
Location

- Karrebæk and Dybsø Fjord – South western part of Zealand
- Fishermen observed the round goby in the fjord for the first time in 2009-2010

Location

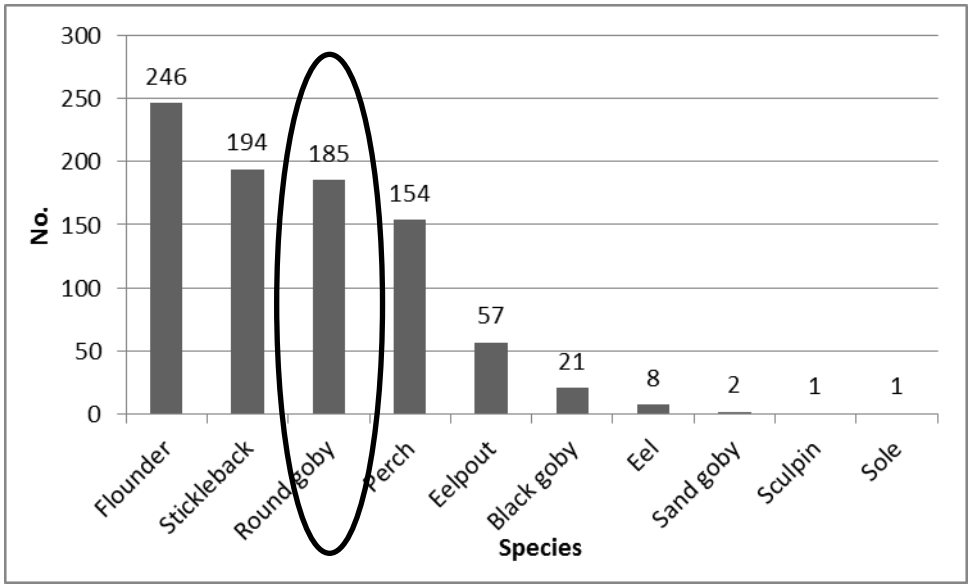
- Observations made in June 2014
- Two enclosures in Karrebæk Fjord
- Fishing time was 48 hours





Results – overall

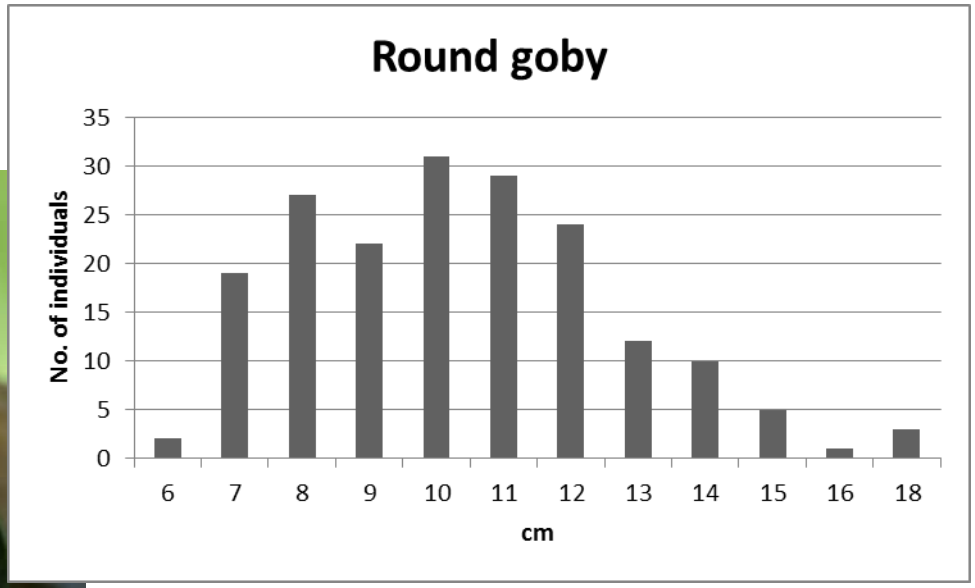
- Ten species with a total catch of 869 fish (5-81 cm)
- No pelagic species
- Flounder the most dominant fish species
- 185 round goby caught in total
- 21 % of total catch



Results - round goby

- From 6–18 cm (avg. 10.3 cm)
- Most individuals between 7–12 cm


Photo: Henrik Carl



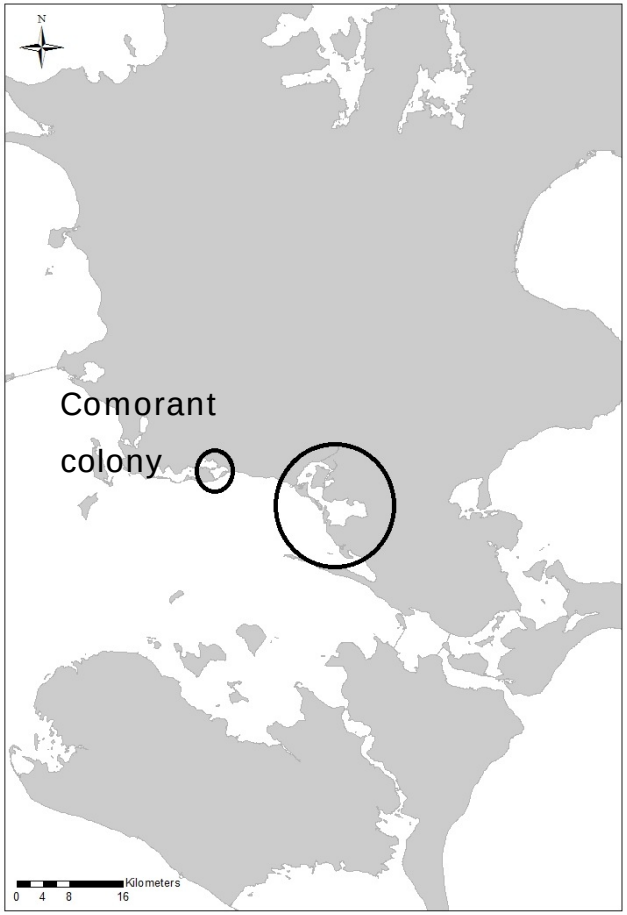
Results - round goby

- Enclosure experiment covered 1 ha each – in total 2 ha
- A total of 185 round gobies found
- From length/weight relationship the total weight of the round gobies in the enclosures was 4200 g
- The total biomass of round gobies in Karrebæk fjord is estimated to be 8400 kg


Photo: Mads Christoffersen

Predators – Great Cormorant

- Ormø colony is a large cormorant colony
- 1000 nests ~ 4000 birds
- 15 km from Karrebæk Fjord



Predators - Great Cormorant

- Visited the colony a few times – small island – totally invaded by cormorants

Predators - Great Cormorant

- Revealed several half-eaten fish under the nests
- PIT tagged smaller eels were released in the fjord in June 2014 to document if cormorant fourage in Karrebæk Fjord

Predators - fish

- Recreational fishermen soon discovered that predatory fish liked the round goby

Predators - fish

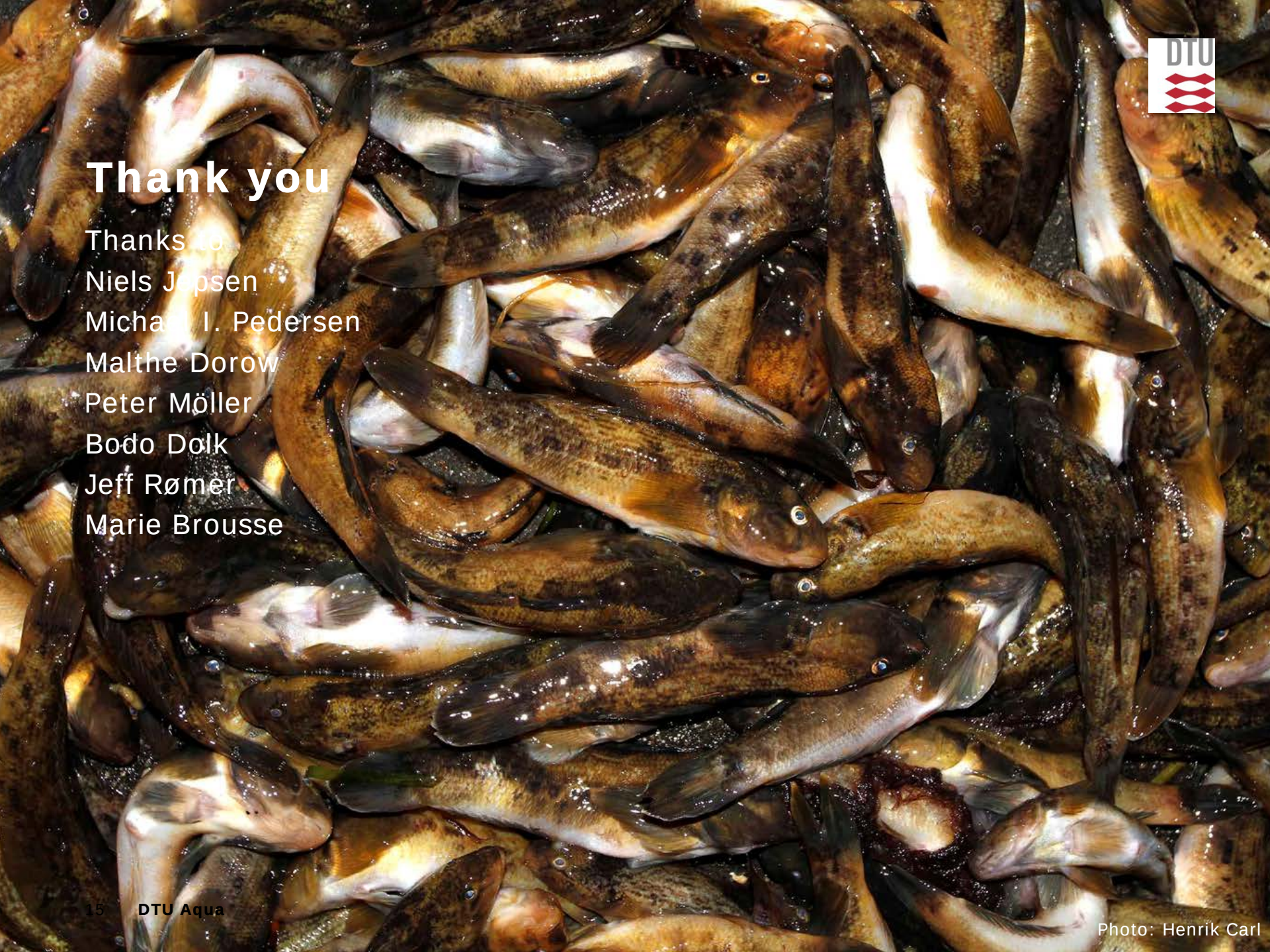
- Small eel stocked in Karrebæk fjord in 2011-12

Predators - fish

- In 2014 turbot were stocked
- Hopefully some of these fish will use the round goby as their prey

Perspectives

- The impact of the round goby on the trophic dynamics in the system needs to be investigated
- More effective field experiments with specific focus on the round goby is needed
- Stomach content in predators (eel, turbot etc.) should be investigated
- Do mesocosm experiments with/without the round goby to study behaviour and interactions with other fauna
- The potential for round goby as a food source for commercial and recreational important fishes should be explored



Thank you

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Photo: Henrik Carl

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